SUPPORT FOR THE AMENDMENTS

Claims 1-2 were previously canceled.

Claim 6 has been amended.

The amendment of Claim 6 is supported by page 14, line 31 to page 15, line 4 of the original specification.

No new matter has been added by the present amendment.

REMARKS

Claims 3-10 are pending in the present application.

The rejections of: (a) Claims 3, 5, 6, 9, and 10 under 35 U.S.C. §102(b) over Balazs et al; (b) Claims 3, 5, 6, 9, and 10 under 35 U.S.C. §102(b) over Hvidberg et al; (c) Claims 3, 5, 6, 9, and 10 under 35 U.S.C. §102(b) over Khan et al; (d) Claim 4 under 35 U.S.C. §102(b) and/or 35 U.S.C §103(a) over Balazs et al; (e) Claims 4 and 8 under 35 U.S.C. §102(b) and/or 35 U.S.C §103(a) over Hvidberg et al, are obviated by amendment.

In the Office Action mailed November 1, 2005, the Examiner asserts that Balazs et al and Hvidberg et al disclose the Applicant's method of producing a low molecular weight glycosaminoglycan (hyaluronic acid), which comprises irradiating the glycosaminoglycan with an ultraviolet ray to lower the molecular weight of the glycosaminoglycan and simultaneously decompose and remove the contaminants. However, Applicants submit that neither Balazes et al nor Hvidberg et al specifically disclose or suggest such decomposition and removal of contaminants, especially decomposition and removal of the contaminants specifically defined in claim 6 amended above (i.e., contaminants, comprising at least one of proteins, nucleic acids, and pigments). Moreover, neither Balazes et al nor Hvidberg et al specifically disclose or suggest the same when simultaneously attained by ultraviolet irradiation with lowering the molecular weight of the glycosaminoglycan as claimed by the present invention. As such, Applicants submit that Balazs et al and Hvidberg et al cannot anticipate the claimed invention.

The Examiner has also alleged that Khan et al disclose the claimed method of producing a low molecular weight glycosaminoglycan (chondroitin sulfate), which comprises irradiating the glycosaminoglycan with an ultraviolet ray to lower the molecular weight of the

glycosaminoglycan and simultaneously decompose and remove the contaminants. However, as in the case of Balazs et al and Hvidberg et al, Khan et al also fail to disclose or suggest such decomposition and removal of contaminants simultaneously attained by ultraviolet irradiation with, lowering the molecular weight of the glycosaminoglycan as claimed by the present invention. In particular, Khan et al fails to disclose or suggest decomposition and removal of contaminants, wherein in the contaminants are at least one of proteins, nucleic acids, and pigments (see Claim 6).

Further, Applicants submit that Khan et al do not specifically disclose lowering of the molecular weight of chondroitin sulfate. Although Khan et al disclose a decrease in viscosity of hyaluronic acid (page 36, Fig. 1) they do not disclose a decrease in viscosity of chondroitin sulfate. On the contrary, Khan et al describes that the presence of the sulfate group makes scission at the glycosidic linkage less likely (Abstract). In view of the foregoing, Applicants submit that Khan et al fails to anticipate the claimed invention.

The method of the present invention is based on the finding that decomposition and removal of the contaminants, especially the UV-absorbing contaminants, could be simultaneously attained with the lowering the molecular weight of the glycosaminoglycan by irradiation of a ultraviolet ray. And, as such, simultaneous decomposition and removal of the contaminants constitute one of the essential characteristics of the present invention. Therefore, as stated above, the method of the present invention cannot be anticipated by any of Balazs et al, Hvidberg et al, and Khan et al.

Moreover, Applicants submit that the cited prior art cannot even support a *prima facie* case of obviousness. Specifically, Applicants submit that in view of the failure of Balazs et al, Hvidberg et al, and Khan et al to specifically disclose the essential characteristics of the present invention discussed above, the present invention is not obvious in view of the same.

It appears to be the Examiner's position that the art of record disclose decomposition of glycosaminoglycans by UV irradiation under conditions similar to those used for the present invention, and therefore the simultaneous decomposition and removal of the contaminants are substantially disclosed in the references. However, it cannot be expected even for those skilled in the art that the contaminants such as proteins, nucleic acids and pigments can also be decomposed and removed by irradiation of a ultraviolet ray that can decompose the glycosaminoglycans. As such, Applicants submit that any combination of the cited references cannot affect the patentability of the method of the present invention. In other words, the present invention would not be obvious in view of any combination of Balazs et al, Hvidberg et al, and Khan et al.

Further, Applicants wish to correct an erroneous understanding of the Examiner's concerning the temperature. Specifically, the Examiner stated that one may deduce that the temperature employed by Balazs et al or Hvidberg et al would be about room temperature (approx.25 °C), since such ultraviolet irradiation of samples are normally performed at room temperature. However, the temperature ranges defined in Claims 4 and 5 means preferred temperature ranges of samples (glycosaminoglycan) for avoiding thermal decomposition of the glycosaminoglycan. Even though ultraviolet irradiation of samples is performed at room temperature as normally performed, the temperature of the sample *per se* is considerably increased, if any cooling means is not provided as in the present invention (examples).

Based on the foregoing, Applicants request withdrawal of these grounds of rejection.

Applicants submit that the present application is ready for allowance. Early notice to this effect is requested.

Respectfully submitted,

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